

What Is Claimed Is:

1. A liquid crystal display device comprising a liquid crystal layer and a pair of electrodes for applying voltage onto  
5 the liquid crystal installed on both sides of said liquid crystal layer, the liquid crystal layer and pair of electrodes being sandwiched by a pair of substrates, wherein:

said liquid crystal layer has a section obtained by polymerizing a polymerizable compound in the presence of said  
10 liquid crystal through selective irradiation of active energy rays over the substrate surface.

2. A liquid crystal display device comprising a liquid crystal layer and a pair of electrodes for applying voltage onto  
15 the liquid crystal installed on both sides of said liquid crystal layer, the liquid crystal layer and pair of electrodes being sandwiched by a pair of substrates, wherein:

said liquid crystal layer has a section obtained by polymerizing a polymerizable compound in the presence of said  
20 liquid crystal through selective irradiation of active energy rays over the substrate surface without voltage application.

3. A liquid crystal display device according to claim 1 or 2, wherein said liquid crystal layer has a section obtained  
25 by polymerization through selective irradiation of active energy rays followed by irradiation of active energy rays all over the substrate surface with voltage application.

4. A liquid crystal display device according to claim 3,  
wherein at least one of said two irradiations of active energy  
rays has been carried out along a direction tilted from the normal  
5 to the substrate surface.

5. A liquid crystal display device according to one of  
claims 1 to 4, where said liquid crystal layer shows a specific  
light shielding pattern caused by the alignment of liquid crystal  
10 molecules when a voltage is applied after said irradiation or  
irradiations of active energy rays.

6. A liquid crystal display device according to claim 5,  
wherein said specific light shielding pattern caused by the  
15 alignment of liquid crystal molecules comprises at least one  
pattern selected from the group consisting of a lattice pattern,  
a crisscross pattern, a pattern in the shape of stripes and a  
pattern in the shape of stripes with bends.

20 7. A liquid crystal display device according to one of  
claims 1 to 6, wherein a section or sections (alignment direction  
controlling section or sections) that show an effect to control  
the alignment directions caused by a polymerized liquid crystal  
composition obtained by the selective irradiation of active  
25 energy rays are installed on either one or both of the surfaces  
which contact the liquid crystal layer. (liquid crystal layer  
contacting surfaces).

8. A liquid crystal display device according to claim 7,  
wherein at least one means selected from the group consisting  
of protrusions, depressions and a slit pattern in an electrode  
5 is installed on the surface or surfaces which contact the liquid  
crystal layer (liquid crystal layer contacting surface or  
surfaces).

9. A liquid crystal display device according to one of  
10 claims 1 to 8, wherein said liquid crystal has a negative  
dielectric constant anisotropy, and is aligned in the direction  
vertical to the substrate surface when no voltage is applied after  
said irradiation or irradiations of active energy rays.

15 10. A liquid crystal display device according to one of  
claims 1 to 9, wherein:

a first polarizer and a second polarizer are installed each  
on one of the outer sides of said pair of substrates so that the  
absorption axes of the two polarizers are perpendicular to each  
20 other;

a first 1/4 wavelength plate is installed between one of  
said substrates and the first polarizer;

a second 1/4 wavelength plate is installed between the  
other one of said substrates and the second polarizer; and,

25 the absorption axis of the first polarizer is at 45° from  
the phase delay axis of the first 1/4 wavelength plate, the  
absorption axis of the second polarizer is at 45° from the phase

delay axis of the second 1/4 wavelength plate, and the phase delay axis of the first 1/4 wavelength plate and the phase delay axis of the second 1/4 wavelength plate are perpendicular to each other.

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11. A method for manufacturing a liquid crystal display device comprising a liquid crystal layer and a pair of electrodes for applying voltage onto the liquid crystal installed on both sides of said liquid crystal layer, the liquid crystal layer and  
10 pair of electrodes being installed between a pair of substrates, said method comprising:

forming said liquid crystal layer from a liquid crystal composition comprising a liquid crystal and a polymerizable compound;

15 polymerizing part of said polymerizable compound by selective irradiation of active energy rays over the substrate surface with no voltage application; and then,

polymerizing said polymerizable compound by irradiation of active energy rays all over the substrate surface with voltage  
20 application.

12. A method for manufacturing a liquid crystal display device according to claim 11, wherein a photomask is used for said selective irradiation of active energy rays.

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13. A method for manufacturing a liquid crystal display device according to claim 12, wherein the light shielding section

width and opening width of said photomask are each in the range of 2 to 100  $\mu\text{m}$ .

14. A method for manufacturing a liquid crystal display device according to one of claims 11 to 13, wherein said active energy rays are ultraviolet rays.

15. A method for manufacturing a liquid crystal display device according to one of claims 11 to 14, wherein said irradiations of active energy rays are carried out so that said liquid crystal layer shows a specific light shielding pattern caused by the alignment of liquid crystal molecules when a voltage is applied after the irradiations of active energy rays.

16. A method for manufacturing a liquid crystal display device according to one of claims 11 to 15, wherein at least one of said two irradiations of active energy rays is carried out along a direction tilted from the normal to the substrate surface.

17. A method for manufacturing a liquid crystal display device according to one of claims 11 to 16, wherein said irradiation of active energy rays at no voltage application is carried out so that a section or sections (alignment direction controlling section or sections) that show an effect to control the alignment directions caused by a polymerized liquid crystal composition obtained by the selective irradiation of active energy rays are generated on either one or both of the surfaces

which contact the liquid crystal layer (liquid crystal layer contacting surfaces).

18. A method for manufacturing a liquid crystal display  
5 device according to one of claims 11 to 17, wherein at least one  
means selected from the group consisting of protrusions,  
depressions and a slit pattern installed in an electrode is  
installed on the surface or surfaces which contact the liquid  
crystal layer (liquid crystal layer contacting surface or  
10 surfaces).